IN THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the above-referenced application:

1. (Currently amended) A method of forming a document model for automatically constructing a semantically and syntactically valid document, the method comprising the steps of:

beginning with a root tag, creating a plurality of tag elements corresponding to ~~a~~ respective tags in the document to be constructed, each of the plurality of tag elements including information relating to ~~the~~ a corresponding one of the tags;

associating one or more model elements with each of the tag elements, each model element being a child of ~~the~~ an associated tag element and representing an alternative to the information relating to the corresponding tag, each of the model elements being distinct from the respective associated tag elements and being operative to capture semantic information of the corresponding respective tags, each of the one or more model elements associated with each of the tag elements representing a different semantic component of the corresponding tag, each model element having at most one tag element as a parent; and

for each of the one or more model elements, generating a semantically and syntactically valid sub-tree of elements as a child of the one or more model elements based at least in part upon a structure of the document to be constructed under one or more predetermined conditions.

2. (Currently amended) The method of claim 1, wherein the step of generating a semantically and syntactically valid sub-tree of elements further comprises the steps of:

assigning a tag element corresponding to a tag in the document when the tag associated therewith includes a single sub-tag, the tag element being a child of the model element corresponding to the sub-tree;

associating one or more model elements with the tag element, each of the model elements being a child of the tag element and representing an alternative semantic component to the information relating to the corresponding tag; and

repeating the steps of assigning a tag element and associating one or more model elements to the tag element until all sub-tags of the tag have been mapped to the document model.

3. (Original) The method of claim 1, wherein the step of generating a syntactically and semantically valid sub-tree of elements further comprises the steps of:

associating a group element with a tag element corresponding to a tag in the document when the tag associated therewith includes a plurality of sub-tags, the group element being a child of the model element corresponding to the sub-tree;

associating a plurality of tag elements with the group element, each of the tag elements being a child of the group element and corresponding to a sub-tag in the plurality of sub-tags;

for each tag element in the plurality of tag elements, associating one or more model elements with the corresponding tag element as a child of the tag element; and

repeating the steps of assigning a group element, associating a plurality of tag elements with the group element, and associating one or more model elements with the corresponding tag element until all sub-tags of the plurality of sub-tags have been mapped to the document model.

4. (Original) The method of claim 1, wherein the step of generating a syntactically and semantically valid sub-tree of elements further comprises the step of:

for each of the one or more model elements, assigning a value element as a child of the model element when the corresponding tag includes textual information associated therewith, the value element storing the textual information therein.

5. (Original) The method of claim 4, wherein the textual information includes at least one of a type and a format of the textual information.

6. (Original) The method of claim 1, wherein each of the one or more model elements includes at least one of:

attribute information associated with a corresponding tag;

one or more references to other model elements that are to be selected and/or prohibited if the model element is selected by an author of the document to be constructed; and

at least a portion of semantic information associated with a corresponding tag.

7. (Original) The method of claim 1, wherein the document to be constructed is an extensible markup language (XML)-based document.

8. (Currently amended) Apparatus for forming a document model for automatically constructing a semantically and syntactically valid document, the apparatus comprising:

at least one processor operative to: (i) beginning with a root tag, create a plurality of tag elements corresponding to ~~a~~ respective tags in the document to be constructed, each of the plurality of tag elements including information relating to ~~the~~ a corresponding one of the tags; (ii) associate one or more model elements with each of the tag elements, each model element being a child of ~~the~~ an associated tag element and representing an alternative to the information relating to the corresponding tag, each of the model elements being distinct from the respective associated tag elements and being operative to capture semantic information of the corresponding respective tags, each of the one or more model elements associated with each of the tag elements representing a different semantic component of the corresponding tag, each model element having at most one tag element as a parent; and (iii) for each of the one or more model elements, generate a semantically and syntactically valid sub-tree of elements as a child of the one or more model elements based at least in part upon a structure of the document to be constructed under one or more predetermined conditions.

9. (Currently amended) The apparatus of claim 8, wherein the at least one processor is further operative to: (iv) assign a tag element corresponding to a tag in the document when the tag associated therewith includes a single sub-tag, the tag element being a child of the model element corresponding to the sub-tree; (v) associate one or more model elements with the tag element, each of the model elements being a child of the tag element and representing an alternative semantic component to the information relating to the corresponding tag; and (vi) repeat the steps of assigning

a tag element and associating one or more model elements to the tag element until all sub-tags of the tag have been mapped to the document model.

10. (Original) The apparatus of claim 8, wherein the at least one processor is further operative to: (iv) associate a group element with a tag element corresponding to a tag in the document when the tag associated therewith includes a plurality of sub-tags, the group element being a child of the model element corresponding to the sub-tree; (v) associate a plurality of tag elements with the group element, each of the tag elements being a child of the group element and corresponding to a sub-tag in the plurality of sub-tags; (vi) for each tag element in the plurality of tag elements, associate one or more model elements with the corresponding tag element as a child of the tag element; and (vii) repeat the steps of assigning a group element, associating a plurality of tag elements with the group element, and associating one or more model elements with the corresponding tag element until all sub-tags of the plurality of sub-tags have been mapped to the document model.

11. (Original) The apparatus of claim 8, wherein the at least one processor is further operative to: (iv) for each of the one or more model elements, assign a value element as a child of the model element when the corresponding tag includes textual information associated therewith, the value element storing the textual information therein.

12. (Original) The apparatus of claim 8, wherein the textual information includes at least one of a type and a format of the textual information.

13. (Original) The apparatus of claim 8, wherein the document to be constructed is an extensible markup language (XML)-based document.

14. (Original) The apparatus of claim 8, wherein each of the one or more model elements includes at least one of:

attribute information associated with a corresponding tag;

one or more references to other model elements that are to be selected and/or prohibited if the model element is selected by an author of the document to be constructed; and

at least a portion of semantic information associated with a corresponding tag.

15. (Currently amended) An article of manufacture for generating a document model for automatically constructing a semantically and syntactically valid document, comprising a machine readable medium containing one or more programs which when executed implement the steps of:

beginning with a root tag, creating a plurality of tag elements corresponding to ~~a~~ respective tags in the document to be constructed, each of the plurality of tag elements including information relating to ~~the~~ a corresponding one of the tags;

associating one or more model elements with each of the tag elements, each model element being a child of ~~the~~ an associated tag element and representing an alternative to the information relating to the corresponding tag, each of the model elements being distinct from the respective associated tag elements and being operative to capture semantic information of the corresponding respective tags, each of the one or more model elements associated with each of the tag elements representing a different semantic component of the corresponding tag, each model element having at most one tag element as a parent; and

for each of the one or more model elements, generating a semantically and syntactically valid sub-tree of elements as a child of the one or more model elements based at least in part upon a structure of the document to be constructed under one or more predetermined conditions.

16. (Currently amended) The article of claim 15, wherein the step of generating a semantically and syntactically valid sub-tree of elements further comprises the steps of:

assigning a tag element corresponding to a tag in the document when the tag associated therewith includes a single sub-tag, the tag element being a child of the model element corresponding to the sub-tree;

associating one or more model elements with the tag element, each of the model elements being a child of the tag element and representing an alternative semantic component to the information relating to the corresponding tag; and

repeating the steps of assigning a tag element and associating one or more model elements to the tag element until all sub-tags of the tag have been mapped to the document model.

17. (Original) The article of claim 15, wherein the step of generating a syntactically and semantically valid sub-tree of elements further comprises the steps of:

associating a group element with a tag element corresponding to a tag in the document when the tag associated therewith includes a plurality of sub-tags, the group element being a child of the model element corresponding to the sub-tree;

associating a plurality of tag elements with the group element, each of the tag elements being a child of the group element and corresponding to a sub-tag in the plurality of sub-tags;

for each tag element in the plurality of tag elements, associating one or more model elements with the corresponding tag element as a child of the tag element; and

repeating the steps of assigning a group element, associating a plurality of tag elements with the group element, and associating one or more model elements with the corresponding tag element until all sub-tags of the plurality of sub-tags have been mapped to the document model.

18. (Original) The article of claim 15, wherein the step of generating a syntactically and semantically valid sub-tree of elements further comprises the step of:

for each of the one or more model elements, assigning a value element as a child of the model element when the corresponding tag includes textual information associated therewith, the value element storing the textual information therein.

19. (Original) The article of claim 15, wherein each of the one or more model elements includes at least one of:

attribute information associated with a corresponding tag;

one or more references to other model elements that are to be selected and/or prohibited if the model element is selected by an author of the document to be constructed; and

at least a portion of semantic information associated with a corresponding tag.

20. (Original) The article of claim 15, wherein the document to be constructed is an extensible markup language (XML)-based document.